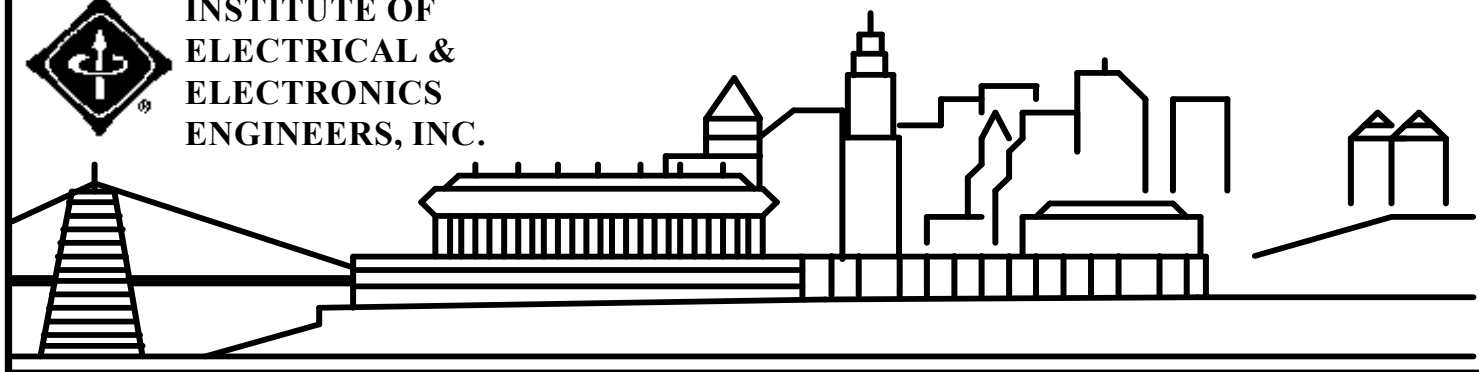




INSTITUTE OF
ELECTRICAL &
ELECTRONICS
ENGINEERS, INC.



MARCH 1998

IEEE CINCINNATI SECTION NEWSLETTER

MARCH/APRIL MEETING

CRASH TEST DUMMIES

DATE : April 9, 1998

PLACE : Quality Inn Central (Norwood) - See map and directions on Page 9.

TIME :	5:30 PM (Social Time)	COST:	\$7.00 (Members)
	6:00 PM (Dinner)		\$3.00 (Students)
	7:00 PM (Program)		\$9.00 (Non-Members)
	8:30 PM (Approx.- Adjournment)		

RESERVATIONS ARE REQUIRED FOR DINNER ONLY !!!

Please call Dee Scott at **923-9546** by **Noon**,
Wednesday, April 8, 1998 if you plan to attend

ABOUT THE MEETING: The presentation will consist of an overview and demonstration of the current developments in the instrumentation in Crash Test Dummies. This a follow-on presentation to Electric Vehicle Technology presented last fall.

ABOUT THE SPEAKER: Mike Beebe has over 20 years of automotive technology experience. He is a partner of Northwest Diversified Services, Inc. (NDS) in Milan, Ohio and is currently engaged as a consultant with several electric vehicle companies assisting in the development of vehicle safety and testing programs. His vehicle testing experience has included braking, durability, cold weather and crash testing.

Mike serves as chairman of the SAE Electric Vehicle Safety Committee working with all the electric vehicle manufacturers on developing safety standards for electric vehicles. He is part of the US Technical Advisor Group to ISO on the development of worldwide EV standards. He holds an AS and BS degree in Mechanical Engineering Technology from Franklin University with post graduate work in Industrial Technology at Bowling Green State University and an AS degree in Electric Vehicle Technology from Jordan Energy Institute. He is also a member of Electricore (the Mid-America EV DARPA Consortia), has been a technical advisor for the EV News, advisor to both the Hybrid Electric Vehicle Challenge vehicles at Jordan College and Cedarville College, and advisor to the Michigan Electrathon. He has given talks on EV standards at SAE meetings, the NESEA conference and the DARPA EV conferences.

Mike has had experience in several areas in the automotive field including Auto Mechanics, Engineering Design, Management and Testing. He has been responsible for many of the crash dummies developed in the past 10 years for the automotive crash standards. He has written many test procedures for the National Highway Traffic Administration. Working for Chrysler and GM, he has developed testing labs and procedures for many automotive components.

Mike currently owns four electric vehicles which include two three-wheeled vehicles and one "ground-up" vehicle. His "ground-up" vehicle has been entered in drag races against gasoline vehicles, the Tour de Sol and SCCA Autocross events.

CHAIR'S MESSAGE

by Randy Holt, Section Chair

The ESGC (Engineers and Scientists of Greater Cincinnati) Awards Dinner during Engineer's Week in February was held at the Syndicate in Newport. A pretty large number of IEEE members were in attendance, along with a goodly number of people from other engineering societies in the Greater Cincinnati area. In addition to meeting and visiting with our engineering friends, it is nice to see some of them receive recognition for their efforts. It's also good to see ESGC moving some of their activities into the Northern Kentucky region, obviously recognizing that a number of engineers are being employed there in a large manufacturing expansion.

In concert with the dinner in Newport, Laura Long (Newport's Planning Director) talked about how Newport has drastically changed its profile to include new businesses like the aquarium along its riverfront and the Millennium Tower that will be two-and-a-half times taller than the Carew Tower with a 66,000-pound bell at the top. David Hosea, a key figure in rehabbing Newport and developing this big tower, also spoke about these activities. One has to come away impressed with what is happening in Newport and how engineering is a key part of it.

This kind of activity reminds us how important engineering has been (and continues to be). Many of us are concerned about the number of students that are deciding on fields other than engineering, and the lack of math skills in many of the students that hope to be engineers. All of us need to step up and work with grade schools and high schools to make young people more aware of what engineering is and how important it is to our society. Your IEEE section has had a number of projects to do this sort of thing in the Cincinnati area, and I would encourage you to get in touch with Bill Lohner (385-7268) and see how you can help. Most of us realize that a dearth of engineers in this country is not healthy for our standard of living and might drive a large part of the more highly technical products to the Pacific basin, India, Bangladesh, etc.

I look forward to seeing you at our March technical meeting (which will be held on the special date of April 9th) where Mike Beebe will talk about the instrumentation required on crash test dummies used in automobile testing. Also remember, it's no longer at IAMS - come to the Quality Inn in Norwood!

The Personal Computer - Part 5

by Dick Reiman, Historian

With the future of the Personal Computer in the hands of the hobbyists, the introduction of circuits board kit by Radio Electronics had brought response from thousands for the instruction book, and many built the Mark 8 computer from these, and computer clubs sprang up in California and Colorado. In 1975, Popular Electronics published two articles on a more sophisticated PC, the Altair 8800. It was the first total PC, and it launched the PC industry. It was based on Intel's 8080 microprocessor and designed by Micro Instrumentation and Telemetry Systems (MITS) of Albuquerque, New Mexico. Fully assembled, it cost \$650; in a kit with necessary parts and

instructions, it was priced for \$395. Thousands of orders poured in following publication.

MITS was founded in 1969 by Edward Roberts, an electronic engineer, 28, a research engineer in the laser division of the Air Force Weapons Lab at Albuquerque's Kirkland Air Force Base. Roberts, born in Miami, Florida, joined the Air Force at Lockland Air Force Base in San Antonio, Texas. With financial aid from the Air Force, he attended Oklahoma State University in Stillwater, and received a BS in electrical engineering.

The first two years of MITS existence, Roberts and two partners from the Lab, and one civilian partner, the company was on a shoe-string budget and part time operation. Its first project was a telemetering kit for a model rocket, which did poorly. Forest Mims, one of the co-founders, wrote an article for popular Electronics on the "Opticon", a device which could send and receive voice via infrared light. With little response from the readers, Mims and the other partners exited and Roberts bought them out for \$100 each.

Roberts, now alone, tried electronic calculator kit, and this brought an enthusiastic response for its \$169 model. The company filled 10 to 15 thousand orders between 1972 and 1974, but the semiconductor manufacturers market entry ended MITS's business.

Roberts then went with an unprecedented project, a computer kit. He approached Popular Electronics who encouraged him. The kit offered little more than a toy and would sell for \$400. Roberts and his engineers started building the Altair, using Intel's 8080 microprocessor.

The Altair was designed by Roberts, William Yates, a former Air Force Officer with a degree in aeronautical engineering, and Jim Bybee, also an ex-Air Force officer and electronics engineer. Roberts started with a clever decision. The Altair would be easy to expand, with extra slots for additional circuit boards for future expansion and future sales. Roberts obtained a \$65,000 loan from Fidelity National who owned MITS's debt papers. One Altair was built, sent by Railway Express to New York for Popular Electronic editors Arthur Salsberg and Leslie Solomon's evaluation. It arrived a year later. Roberts flew to New York, and explained the Altair to them. They decided to publish the kit with only a assembled outer shell of Altair which did arrive for publication, and the arrival of "the home computer" was proclaimed. Mims was swamped with orders. With a revised kit, Paul Allen and Bill Gates would enter the computer scene as BASIC programmers.

A MESSAGE FROM YOUR PACE CHAIRMAN

by Bill Lohner, PACE Chairman

"A Network of Professional Activities for Engineers"

Our PACE committee is continuing to work on promoting technical and scientific education for Precollege students. The PACE committee met in January, inviting a retired curriculum consultant from the Hamilton County Office of Education, to give us some insight into today's educational processes. Some of the areas discussed were as follows:

- (1) A program called "Problem Based Learning". This program is controlled by the teacher and involves all grades and disciplines. Teachers need extra training for this program.
- (2) Another program combines a group of teachers to do learning projects as a team. This program goal is to teach students the qualities industry wants in their graduates.

The curriculum consultant suggested the best way to encourage students to continue their math and science education is to do a "Team With Teachers" program. Miami University at Oxford is developing a course where teachers work together in a teamwork concept.

As we continue to explore these areas, two things became evident:

First, to create an interest in students to continue math and science programs, the students in the middle schools need to be targeted.

Second, assistance needs to be given to teachers of these students to help make math and science more exciting as well as stress their importance. Students and parents need to know the importance of math and science.

Our committee plans another meeting in March in which we would like to consolidate the information we have collected and start to formulate a plan to address some of the math and science educational problems in our area.

Some quotes from an article in the Cincinnati Enquirer dated February 25, 1998:

"U.S. 12th graders trail others" "Finding includes advanced students". Even the most advanced high school seniors in the United States perform below their counterparts in other countries, a new international study concludes. This report was from the Third International Mathematics and Science Study. The U.S. 12th graders only outperformed Cyprus and South Africa in general science and mathematics knowledge. On tests that compared advanced math and science students the United States was lowest. Time to do something!

Any help or suggestions are appreciated.

Bill Lohner
PACE Chairman
(513)-385-7268

IEEE NEWS

PREMIERE ISSUE OF TODAY'S ENGINEER HOT OFF PRESSES

WASHINGTON, Jan. 28, 1998 – TODAY'S ENGINEER, the first magazine to focus solely on nontraditional professional-development requirements for engineers of all disciplines, has published its debut issue.

The premiere issue of the quarterly magazine includes a series of articles and editorial departments geared for the professional development of all engineers, packaged with eye-catching illustrations and cutting-edge graphic design. The content highlights critical nontechnical skills such as the ability to think critically, creatively, independently and cooperatively; strong interpersonal and communications skills; and high ethical standards.

The cover story, "The Dawning of a New Age: Crossroads of the Engineering Profession," urges engineers to rise above the Dilbert model and redefine their profession by transcending traditional boundaries, thinking strategically, and developing a business perspective. A feature article, "Project Scope Creep," provides helpful guidance for product-development teams on how to avoid common pitfalls that can prevent bringing new products to market on-time and on-budget. "It's Not Eighth-Grade English" explores the task engineers hate

most, but spend much of their time doing – communication – and provides helpful instruction on "engineering communication," which, according to the article, is "a lot more like engineering itself than it is academic writing." "Who Are We?" takes a look at the results of a survey which assessed the similarities and differences of men and women engineers in all engineering disciplines.

"Out with the Old, In with the New" is a tutorial on the procedure used to revamp an aged and outdated product line. The article uses a case study to explore how one manufacturing company revitalized its line of lighting products that resulted in reduced parts and labor costs, a nearly doubling of annual sales, on-time production schedules, and a defect-free finished-goods audit of 250,000 units.

The premiere issue begins with a salute to National Engineers Week, featuring a column from the 1998 Honorary Chair, Wayne Allen, the Chairman and CEO of Phillips Petroleum. Also near the front of the book is the "Short Circuit," a breezy collage of short, informative features including project tips, best practices, "The Masters," and a "Top Ten List."

Departments found in every issue include "Newsmakers," "Trends," "Technology Policy," and "Management Briefs." In the premiere issue, "Management Briefs" focuses on how to run a more efficient, productive, and, consequently, shorter meeting. The "Trends" department provides guidance to help engineers assess where they fit in their organization and helps the reader develop a strategy to enable them to meet their engineering career goals.

"Engineers, like all professionals, are being asked to wear more hats than ever before," said editor-in-chief Gus Gaynor. "It's no longer enough to be a master of technology alone. You have to have terrific leadership skills, know about product marketing and management, thrive in an entrepreneurial and competitive environment, and have a broader understanding of what it takes for your organization to succeed. In short, you need to be able to 'think outside the cubicle.' We believe the debut issue and succeeding issues will help engineers meet this challenge."

TODAY'S ENGINEER is published by IEEE-USA, which promotes the career and public-policy interests of U.S. members of the world's largest technical-professional society. For more information on TODAY'S ENGINEER, call 202-785-0017, ext. 313; send e-mail to <ieeusa-magazine@ieee.org>; or visit the magazine's Web site at URL <www.todaysengineer.org>. To subscribe, call 1-800-678-4333 and ask for product no. PB-331. Annual subscriptions are \$18.95 for individuals (\$12.95 IEEE members) and \$6.95 each for group subscriptions of 100 or more.

HONORARY CHAIRMAN OF NATIONAL ENGINEERS WEEK URGES ENGINEERS TO DEVELOP NON-TRADITIONAL SKILLS IN PREMIERE ISSUE OF TODAY'S ENGINEER

WASHINGTON, Jan. 29, 1998 – Writing in the debut issue of TODAY'S ENGINEER magazine, Phillips Petroleum Chairman and CEO Wayne Allen issued a clarion call to engineers to meet levels of "competency and fluency in areas once considered 'alien territory.'"

In a special column celebrating National Engineers Week, Allen, the Week's 1998 Honorary Chairman, stated, "These alien regions I refer to include such diverse fields as communications, business and engineering ethics, organizational skills, financial analysis, personal skills, writing and speaking abilities, and computer proficiency."

He wrote that engineers "must become better skilled at combining the best traits of the dreamer, the truth-seeker, the diplomat, the educator, the inventor, the environmentalist, the manufacturer, the entertainer, the consumer, the philosopher, and the concerned-about-the-bottom-line executive."

TODAY'S ENGINEER Editor-in-Chief Gus Gaynor commented, "Allen's theme of broadening professional horizons is also the editorial mission of Today's Engineer, the quarterly magazine dedicated to develop the non-technical skills all engineers need to build successful and rewarding careers."

In his column, Allen urges engineers to help fight the shortage of graduating high school students academically equipped for college engineering programs by visiting schools to "spread the word about engineering and what an exciting, rewarding, significant profession it is."

Each quarterly issue of TODAY'S ENGINEER will include up to six feature articles tied to the development of successful engineering attributes such as understanding of engineering science fundamentals and the context in which engineering is practiced; ability to think critically, creatively, independently and cooperatively; strong interpersonal and communications skills; and high ethical standards. TODAY'S ENGINEER will also incorporate case studies, engineers' roundtables, management briefs and newsmakers.

IEEE-USA AT IMMIGRATION HEARINGS: LET FREE MARKET SOLVE HIGH-TECH WORKFORCE IMBALANCES

WASHINGTON, Feb. 25, 1998 – "Claims of high-tech worker shortages are inflated, the available domestic labor supply is understated, and the wisdom of expanding immigration is overrated" by groups lobbying Congress to increase or eliminate the current annual cap on H-1B skilled-employment visas, according to Dr. John R. Reinert, president of The Institute of Electrical and Electronics Engineers - USA (IEEE-USA), who testified today at immigration hearings held by the Senate Judiciary Committee. Reinert, representing the public-policy interests of 220,000 U.S. electrotechnology and information-technology professionals, urged Congress and U.S. industry to help free-market mechanisms work more efficiently to correct labor imbalances rather than "resort to increased immigration as a quick fix for growing workforce demand."

While lauding the value of "a balanced, fair and properly utilized" immigration system in promoting U.S. competitiveness, Reinert cautioned that quickly expanding the high-tech worker pool with inexpensive foreign labor would have negative short- and long-term consequences for the national interest. "Opening the immigration floodgates is a simple and easy solution that will create complex and difficult problems down the road," he stated.

"The hidden blessing in the current high-demand market for certain technical specialties is that it should encourage us to retrain displaced workers, attract under represented women and minorities, better educate our young people, and recommission willing and able older workers who have been forced out of the field," Reinert testified. "By raising the visa limits, the government instead would provide a powerful incentive to squander these important national resources and cause an increasing erosion of our domestic technical infrastructure."

After noting that salary studies fail to support the notion of a widespread shortage of technical professionals, Reinert argued that advocates of increased immigration have oversimplified the dynamics of labor supply. "Since engineering employment increased by 12 percent during the past decade even as engineering degree awards declined 17 percent, we know that supply is much more than a function of degree output," he said. "In fact, more than 80 percent of those working now as computer scientists, systems analysts and programmers have educational backgrounds in other fields. Future growth in the supply of electrotechnology and information technology workers will come not only from a recent upsurge in enrollments in technical-degree programs, but

also from retraining of workers made available by continuing layoffs, early retirements and transfers from other fields."

Reinert also recalled "the checkered history of using immigration to avert predicted high-tech worker shortages." In the late 1980s, an expanding economy and National Science Foundation reports of an impending shortage of engineers led Congress in 1990 to create the H-1B visa program, which was followed shortly by a recession, large-scale defense cutbacks, and the corporate restructuring movement. The combination of lowered workforce demand and expanded immigration resulted by 1994 in historically high levels of engineering unemployment and the lowest real engineering salaries in two decades, according to Reinert. In addition, he said, the H-1B system has been abused, causing U.S. workers to be fired and replaced by lower-paid foreign workers. "The potential for large-scale abuse of the H-1B program -- highlighted in a 1995 Labor Department Inspector General's report -- is still there, since legislative and regulatory attempts to reform the system have been thwarted over the past several years," he stated.

"Our choice now is not easy but it is clear," concluded Reinert. "Training and education will help the free market utilize our domestic technical labor supply more efficiently -- resulting in many benefits to American industry, workers and the nation. Substantially increased immigration will likely lead to potential abuses of U.S. and foreign workers now and a decline in economic competitiveness, living standards and national security for years to come."

IEEE-USA VOLUNTEERS TACKLE INFO TECH WORKFORCE ISSUES

Some of IEEE-USA's most active volunteers have been busy tackling information technology (IT) issues following a convocation in January in Berkeley, Calif. The "National IT Workforce Convocation," held Jan. 12-13, has received attention for addressing a vital subject to industry and the nation. The purpose of the convocation was to examine the dimensions of what industry contends is a critical shortage of skilled information technology workers, identify best practices for solving the problem and establish partnerships to increase the supply and quality of available IT workers.

IEEE-USA participated in the conference, which resulted in various task forces on which some of our volunteers are now serving. IEEE-USA will continue to work for the benefit of the IEEE's U.S. members on IT issues through these task forces:

- Basic Math and Science Competencies

Task force member: Constantine Anagnostopoulos, IEEE-USA Precollege Education Committee Chair

- Image of the IT Professional

Task force member: Gus Gaynor, IEEE Engineering Management Society President and Editor of "Today's Engineer"

- Quality and Productivity Issues

Task force member: John Reinert, IEEE-USA President

- Recruitment of Underrepresented Groups

Task force member: Sylvia Wilson Thomas, IEEE-USA Career Equality and Workforce Committee Member

- Responsiveness of Industry and Higher Education to Each Other's Needs

Task force member: J. Mark Pullen, IEEE-USA Technology Policy Council Vice Chair

- Skill Upgrading of the Current Workforce

LOCAL IEEE SECTION NEWS

OBITUARY

Mr. E. G. Hentz passed away in December 1997, according to his son. His address was 545 Purcell, Cincinnati OH 45205. Mr. Hentz, 97 years old, was a life-member in IEEE and one of our oldest local living members.

LETTER TO THE SECTION

To the Cincinnati IEEE:

I had great time at the meeting in October concerning the Electric Vehicle Industry. I just return from California where I attended a week-long EV meeting. I lost the address of the individuals that requested information on where to purchase EV parts. Please pass along the following names to whoever needs the information. Also they can call me directly at (419) 668 - 0571.

K. T. A. Services Inc.
Upland California
(909) 949 - 7914

Electric Vehicles of America
Bob Batson
(808) 897-0393

I think he has moved his operations to New Hampshire.

Wilde Evolutions Inc.
Jerome, Arizona
(806) 327-8387

If someone would like a copy of some of the old EV News I would be happy to send them.

Sincerely,
Mike Beebe

NEW MEMBERS

The following individuals are new IEEE members who are in our Section:

F. GERARD ALBERS
SHANYAN BAI
CRAIG W. CARPENTER

XUEBING HU
JEFFREY L. LITTLEJOHN
JOHN R. MCNABB

SHAUN R. O'CONNOR
ROB SULLIVAN
RAY R. TERRELL

The following individuals are existing IEEE members who have moved into the Cincinnati Section:

MICHAEL A. JORDAN
LISA M. RALSTON

LAUREN A. SCHIFF
PHILLIP M. WEST

We wish to extend our welcome to all of our Section's new members!!!

Power Systems Design & Analysis using SKM Power*Tools for Windows -

TARGET AUDIENCE:

This course is intended for electric power engineers responsible for the design of three-phase electrical distribution systems. This course will stress calculation procedures, input data and the application of the SKM PTW software as a design tool.

COURSE OUTLINE:

Background

- Per Unit Representation
- Symmetrical Components
- Sequence Impedance of System Components
 - T-lines, cables, transformers, motors and generators

Fault Studies

- Solution Techniques
 - 3P, SLG, LL, LLG Faults
 - Classical Methods
 - ANSI Method
- Short Circuit Models
- Input Data Requirements
- Output Data & Documentation

Load Flow Studies

- Solution Techniques
- Load Flow Models
 - Load Models (KVA_c , Z_c & I_c)
 - Generation Models (PQ, PV & SB)
- Input Data Requirements
- Output Data & Documentation

Motor Starting Studies

- Solution Technique
- Motor Starting Study Models
 - Motor Models
 - Load Models
- Input Data Requirements
- Output Data & Documentation

Protective Device Coordination Studies

- Purpose
- Standard Protection Schemes
 - Tips for Selecting Equipment Ratings
 - Tips for Selecting Protective Devices
- Methodology

- Input Data Requirements
- Output Data & Documentation

PTW Computer Lab

- Case Studies using SKM PTW Software

REGISTRATION:

To register please complete the registration form and return with payment to:

SKM Systems Analysis, Inc.
225 So. Sepulveda Blvd., Suite 350
Manhattan Beach, CA 90266-1376
(310) 372-0088

Advanced registration and payment are required 15 days prior to the start of the course.

Total enrollment will be limited. The course may be canceled and the fees refunded if advanced registration does not reach a required minimum.

COURSE FEE:

The course fee is \$1395. This includes all materials, computer usage, lunch and refreshments at breaks. The course hours are 8:00 a.m. to 5:00 p.m. Monday through Thursday and 8:00 a.m. to noon on Friday.

REGISTRATION FORM:

Name: _____

Company: _____

Address: _____

City: _____ State: _____ Zip: _____

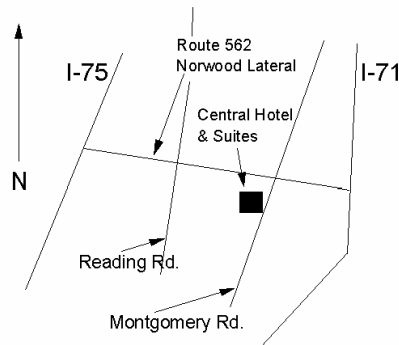
Phone: _____ FAX: _____

___ Philadelphia, PA April 13th - 17th
___ Chicago, IL May 18th - 22nd

___ Boston, MA June 22nd - 26th
___ Houston, TX July 27th - 31st

___ Kansas City, MO August 24th - 28th
___ Denver, CO September 14th - 18th

___ Baton Rouge, LA October 12th - 16th
___ San Francisco, CA November 16th - 20th
___ Phoenix, AR December 7th - 11th



Directions: From I-75 or I-71, get off at the Route 562 exit (Norwood Lateral). Then take the Montgomery Road exit off of 562.

Coming from I-71, at the end of the Montgomery Rd. Exit ramp, take a left onto Norwood Ave., follow to stop light and take a left onto Montgomery Rd. Hotel is approximately 2 blocks down on the right.

Coming from I-75, at the end of the Montgomery Rd. Exit ramp, take a left onto Wesley Ave. At next stop sign, turn left onto Norwood Ave. Follow to stop light and take a left onto Montgomery Rd. Hotel is approximately 2 blocks down on the right.

Dee Scott (call for meeting reservations)

Randy Holt - Chairman

Bob Haas - Vice Chairman

Orest Melnyk - Treasurer

Chris Anderson - Secretary

Ron Harbaugh - Member-At-Large

Laurie Tappel - Member-At-Large

Jack Beckmeyer - Arrangements Chairman

Bill Lohner - PACE Chairman

Bob Morrison - Editor

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MARCH 1998

IEEE CINCINNATI SECTION NEWSLETTER



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Electronics Engineers, Inc.
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Cincinnati, Ohio 45253**

DATED MATERIAL
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